In the Claims:

1. (original) A thruster adapted to be mounted at an operating location at a transom of a boat, having bottom and side wall sections having rear end portions adjacent to the transom and a water line at the transom, said thruster comprising:

a) a central thrusting section which has a lengthwise axis and comprises a central housing that defines a through passageway and two oppositely positioned outer end portions, each of which defines an end opening;

b) a propeller section positioned in said through passageway;

c) two extension members that are positioned at opposite sides of the central housing, with each extension member having an inner end portion adjacent to a related one of said outer end portions of the central housing and extending outwardly therefrom, each extension member having a lower perimeter edge portion which is located so that with the thruster in an operating position, and with the boat being in a lateral thrust operating mode, the perimeter edge portions of the two extension members are below the water line of the boat, each extension member having a lower downwardly facing surface that defines a flow passageway at the downwardly facing surface, said flow passageway having an inner end flow passageway portion adjacent one of the end openings of the center housing;

d) said thruster being configured and arranged, so that with the thruster located at the transom in its operating position:

i) when the boat is traveling at a sufficient speed through the water to cause the water to separate from the transom and form a transom wake surface, the thruster is substantially clear of the water that is at the transom wake surface, and

ii) when the thruster is operating and the boat is in a lateral thrust operating mode, the two extension members have their lower perimeter edge portions located so that as water flows by the lower perimeter edge portions and into one of the end openings of the center housing, ambient air is substantially prevented from being entrained in the water entering into the center housing.

2. (original) The thruster as recited in claim 1, wherein each end opening of the housing is defined by a surrounding rim, and at least a substantial portion of the perimeter edge portion of the extension member which is adjacent to that surrounding rim is below an upper portion of said surrounding rim.

3. (original) The thruster as recited in claim 2, wherein said substantial portion of the perimeter edge portion of each extension member is below the upper portion of the surrounding rim by a distance that is at least about one-half of a depth dimension of the end opening defined by the surrounding rim.

4. (original) The thruster as recited in claim 2, wherein said substantial portion of the perimeter edge portion of each extension member is below the upper portion of

the surrounding rim by a distance between about one-quarter to three-quarters of a depth dimension of the end opening defined by the surrounding rim.

5. (original) The thruster as recited in claim 1, wherein each end opening of the housing is defined by a surrounding rim defining the end opening, each of said end openings having a depth dimension, each extension member having an inner end portion adjacent to its related end opening, an outer end portion, and a length dimension from said inner end portion to the outer end portion, with a length dimension from said inner end portion to said outer end portion of the extension member being at least as great as the depth dimension of its related end opening.

6. (original) The thruster as recited in claim 5, wherein said length dimension is at least as great as one and one-half times said depth dimension.

7. (original) The thruster as recited in claim 1, wherein each end opening of the housing is defined by a surrounding rim having a depth dimension, each of said extension members having a maximum width dimension extending from one side of said extension member to the other side thereof, said maximum width dimension being at least about equal to or greater than the depth dimension of the end opening of the housing adjacent to that extension member.

8. (original) The thruster as recited in claim 1, wherein each of said extension members has its downwardly facing surface shaped so the flow passageway has a greater depth dimension at said inner end flow passageway portion and a lesser depth dimension at an outer end portion of said extension member.

9. (original) The thruster as recited in claim 8, wherein said flow passageway has an inward and upward slope to said inner end flow passageway portion.

10. (original) The thruster as recited in claim 9, wherein the downwardly facing surface of the extension member forms a hydro-dynamically contoured surface that is generally curved upwardly and inwardly to the opening of the housing.

11. (original) A thruster boat combination comprising:

a) a boat comprising a hull having a water line, side walls, a bottom wall, and a transom, with said bottom wall comprising two wall sections which extend from side locations in a downward and laterally inward slant to a central juncture location of the two bottom wall sections, and with said transom meeting said bottom and side walls at bottom and side edge locations thereof, said boat having a thrust operating mode where the boat is stationary or is moving at a sufficiently low speed so that water remains adjacent to the transom;

b) a thruster which is mounted at the transom of the boat so as to provide lateral thrust, said thruster comprising:

i) a central thrusting section which has a lengthwise axis and comprises a central housing that defines a through passageway that is generally aligned with said lengthwise axis and has two oppositely positioned outer end portions, each of which defines an end opening;

ii) a propeller section positioned in said through passageway;

c) two extension members that are positioned at opposite sides of the central housing, with each extension member having an inner end portion adjacent to a related one of said outer end portions of the central housing and extending

outwardly therefrom, each extension member having a lower perimeter edge portion which is located so that with the thruster in an operating position and with the boat being in a lateral thrust operating mode, the perimeter edge portions of the two extension members are below the water line of the boat, each extension member having a lower downwardly facing surface that defines a flow passageway at the downwardly facing surface, said flow passageway having an inner end flow passageway portion adjacent one of the end openings of the central housing;

d) said thruster being configured and arranged, so that with the thruster located at the transom in its operating position:

i) when the boat is traveling at a sufficient speed through the water to cause the water to separate from the transom and form a transom wake surface, the thruster is substantially clear of the water that is at the transom wake surface, and

ii) when the thruster is operating and the boat is in a lateral thrust operating mode, the two extension members have their lower perimeter edge portions located so that as water flows by the lower perimeter edge portions and into one of the end openings of the center housing, ambient air is substantially prevented from being entrained in the water entering into the center housing.

12. (original) The combination as recited in claim 11, wherein a distance between outer end edges of the two extension members is no greater than about sixty percent

and no less than about twenty five percent of a distance between outer edge locations of the transom where the bottom and side walls meet.

13. (original) The combination as recited in claim 11, wherein a distance between outer end edges of the two extension members is no greater than about fifty percent and no less than about thirty percent of a distance between outer edge locations of the transom where the bottom and side walls meet.

14. (original) The combination as recited in claim 11, wherein a distance between outer end edges of the two extensions is no greater than about forty percent of a distance between outer edge locations of the transom where the bottom and side walls meet.

15. (original) The combination as recited in claim 11, wherein a distance between outer end edges of the two extension members is no less than about thirty percent of a distance between outer edge locations of the transom where the bottom and side walls meet.

16. (original) The combination as recited in claim 15, wherein a distance between outer end edges of the two extensions is no less than about forty percent of a distance between edge locations of the transom where the bottom and side walls meet.

17. (original) The combination as recited in claim 12, wherein each end opening of the housing is defined by a surrounding rim having a depth dimension, each of said extension members having a maximum width dimension extending from one side of said extension member to the other side thereof, said maximum width dimension being at least about equal to or greater than the depth dimension of the end opening of the housing adjacent to that extension member.

18. (original) The combination as recited in claim 17, wherein each of said extension members has its downwardly facing surface shaped so that the flow passageway has a greater depth dimension at said inner end flow passageway portion and a lesser depth dimension at an outer end portion of said extension member.

19. (original) The combination as recited in claim 12, wherein a substantial portion of the perimeter edge portion of each extension member is below an upper portion of a surrounding rim defining the end opening of the central housing by a distance that is at least about one-half of a depth dimension of the end opening defined by the surrounding rim.

20. (original) The combination as recited in claim 12, wherein each end opening of the housing is defined by a surrounding rim defining the end opening, each of said end openings have a depth dimension, each extension member having an inner end portion adjacent to its related end opening, an outer end portion, and a length dimension from said inner end portion to the outer end portion, with a length dimension from said inner end portion to said outer end portion of the extension member being at least as great as the depth dimension of its related end opening.

21. (original) The combination as recited in claim 20 wherein said length dimension from said inner end portion to said outer end portion of the extension member is at least as great as one and one-half times said depth dimension.

22. (original) The combination as recited in claim 15, wherein a length dimension of the central housing section of the thruster is between about nine percent to thirty

percent of a length dimension between outer edge locations of the transom where the side walls meet the bottom wall.

23. (original) The combination as recited in claim 15, wherein a length dimension of the central housing section of the thruster is no greater than about thirteen percent to about twenty percent of a length dimension between outer edge locations of the transom where the side walls meet the bottom wall.

24. (original) The combination as recited in claim 15, wherein a length dimension of the central housing section of the thruster is about nine percent to three-twentieths of a length dimension between outer edge locations of the transom where the side walls meet the bottom wall.

25. (original) The combination as recited in claim 11, wherein an upper portion of said center housing of the thruster is at a depth below the water line of the boat which is less than a distance equal to a vertical dimension of the end opening of the passageway of the central housing.

26. (original) The combination as recited in claim 25, wherein the upper portion of the center housing of the thruster is at or adjacent to the water line of the boat.

27. (original) The combination as recited in claim 11, wherein a vertical dimension of one of the end openings of the passageway of the central housing is no less than about two-thirds of a vertical distance between the water line and a lower portion of the transom of the boat.

28. (original) The combination as recited in claim 11, wherein a vertical dimension of one of the openings of the passageway of the central housing is no less than

about three-quarter of a vertical distance between the water line and a lower portion of the transom of the boat.

29. (original) The combination as recited in claim 11, wherein a vertical dimension of one of the openings of the passageway of the central housing is no less than about eighty-one percent of a vertical distance between the water line and a lower portion of the transom of the boat.

30. (original) A thruster adapted to be mounted to a boat at an operating location, said thruster comprising:

a) a central thrusting section which has a lengthwise axis and comprises a central housing that defines a through passageway and two oppositely positioned outer end portions, each of which defines an end opening;

b) a propeller section positioned in said through passageway;

c) two extension members that are positioned at opposite sides of the central housing, with each extension member having an inner end portion adjacent to a related one of said outer end portions of the central housing and extending outwardly therefrom, each extension member having a lower perimeter edge portion which is located at an elevation lower than the end openings of the center housing, each extension member having a downwardly facing surface that defines a flow passageway at the downwardly facing surface, said flow passageway having an inner end flow passageway portion adjacent one of the end openings of the center housing;

d) said thruster being configured and arranged, so that with the thruster located in an operating position with the thruster operating to provide a lateral thrust, the two extension members have their lower perimeter edge portions located so that as water flows by the lower perimeter edge portions and into one of the end openings of the center housing, ambient air is substantially prevented from being entrained in the water entering into the center housing.

31. (original) The thruster as recited in claim 30, wherein each end opening of the housing is defined by a surrounding rim, and at least a substantial portion of the perimeter edge portion of the extension member which is adjacent to that surrounding rim is below an uppermost portion of said surrounding rim by a distance between about one quarter to three quarters of a depth dimension of the end opening defined by the surrounding rim.

32. (original) The thruster as recited in claim 30, wherein each end opening of the housing is defined by a surrounding rim, and at least a substantial portion of the perimeter edge portion of the extension member which is adjacent to that surrounding rim is below an uppermost portion of said surrounding rim by a distance that is at least about one-half of a depth dimension of the end opening defined by the surrounding rim.

33. (original) The thruster as recited in claim 30, wherein each end opening of the housing is defined by a surrounding rim defining the end opening, each of said end openings having a depth dimension, each extension member having an inner end portion adjacent to its related end opening, an outer end portion, and a

length dimension from said inner end portion to the outer end portion, with a length dimension from said inner end portion to said outer end portion of the extension member being at least as great as the depth dimension of its related end opening.

34. (original) The thruster as recited in claim 33, wherein said length dimension is at least as great as one and one-half times said depth dimension.

35. (original) The thruster as recited in claim 30, wherein each end opening of the housing is defined by a surrounding rim having a depth dimension, each of said extension members having a maximum width dimension extending from one side of said extension member to the other side thereof, said maximum width dimension being at least about equal to or greater than the depth dimension of the end opening of the housing adjacent to that extension member.

36. (original) The thruster as recited in claim 30, wherein each of said extension members has its downwardly facing surface shaped to have a greater depth dimension at said inner end flow passageway portion and a lesser depth dimension at an outer end portion of said extension member.

37. (original) The thruster as recited in claim 36, wherein said flow passageway having an inward and upward slope to said inner end flow passageway portion.

38. (original) The thruster as recited in claim 37, wherein the downwardly facing surface of the extension member forms a hydro-dynamically contoured surface having a concave surface that is generally curved upwardly and inwardly to the opening of the housing.

39. (original) A method of providing lateral thrust in a boat comprising a hull having a water line, side walls, a bottom wall, and a transom, with said bottom wall comprising two wall sections which extend from side locations in a downward and laterally inward slant to a central juncture location of the two bottom wall sections, and with said transom meeting said bottom and side walls at bottom and side rear edge locations thereof, said boat having a lateral thrust operating mode where the boat is stationary or is moving at a sufficiently low speed so that water remains adjacent to the transom, and a higher speed operating where water separates from the transom to form a transom wake surface,

said method comprising:

a) providing a thruster by:

i) providing a central thrusting section which has a lengthwise axis and comprises a central housing that defines a through passageway that is generally aligned with said lengthwise axis and has two oppositely positioned outer end portions, each of which defines an end opening and a propeller section positioned in said through passageway;

ii) positioning two extension members at opposite sides of the central housing to form said thruster in a manner that each extension member has an inner end portion adjacent to a related one of said outer end portions of the central housing with the extension members extending outwardly therefrom, and each extension member having a lower perimeter edge portion,

b) positioning the thruster with the two extension members in an operating position at the transom of the boat, so that the perimeter edge portions of the two extension members are below the water line of the boat, with each extension member having a downwardly facing surface that defines a flow passageway at the downwardly facing surface, and with said flow passageway having an inner end flow passageway portion adjacent one of the end openings of the central housing,

c) operating the boat with the thruster positioned so that during a time period when the boat is in said lateral thrust operating mode to cause a lateral thrust, the two extension members are positioned so that their lower perimeter edge portions are located so that as water flows by one of the lower perimeter edge portions and into one of the end openings of the center housing, ambient air is substantially prevented from being entrained in the water entering into the central housing, and during a time period when the boat is operating during the higher velocity operating mode the thruster is substantially clear of the water that is at the transom wake surface.

40. (original) The method as recited in claim 39, further comprising providing each end opening of the housing defined by a surrounding rim, with at least a substantial portion of the perimeter edge portion of the extension member which is adjacent to that surrounding rim being below an uppermost portion of said surrounding rim.

41. (original) The method as recited in claim 40, wherein said substantial portion of the perimeter edge portion of each extension member is positioned below the upper

portion of the surrounding rim by a distance that is at least about one-half of a depth dimension of the end opening defined by the surrounding rim.

42. (original) The method as recited in claim 41, wherein said substantial portion of the perimeter edge portion of each extension member is positioned below the upper portion of the surrounding rim by a distance between about one-quarter to three-quarters of a depth dimension of the end opening defined by the surrounding rim.

43. (original) The method as recited in claim 39, wherein each end opening of the housing defined by a surrounding rim has a depth dimension, and each extension member has an inner end portion adjacent to its related end opening, an outer end portion, and a length dimension from said inner end portion to the outer end portion, said method further comprising providing said extension members and said central thrusting section so that a length dimension from said inner end portion to said outer end portion of the extension member is at least as great as the depth dimension of its related end opening.

44. (original) The method as recited in claim 43, wherein said extension members and said central thrusting section of said thruster are provided so that said length dimension is at least as great as one and one-half times said depth dimension.

45. (original) The method as recited in claim 39, wherein each end opening of the housing is defined by a surrounding rim having a depth dimension, each of said extension members having a maximum width dimension extending from one side of said extension member to the other side thereof, said maximum width dimension being at least about equal to or greater than the depth dimension of the end opening of the housing adjacent to that extension member.

46. (original) The method as recited in claim 39, wherein each of said extension members has its downwardly facing surface shaped so the flow passageway has a greater depth dimension at said inner end flow passageway portion and a lesser depth dimension at an outer end portion of said extension member.

47. (original) The method as recited in claim 46, wherein said flow passageway has an inward and upward slope to said inner end flow passageway portion.

48. (original) The method as recited in claim 39, wherein the downwardly facing surface of the extension member forms a hydro-dynamically contoured surface that is generally curved upwardly and inwardly to the opening of the housing.

49. (previously presented) A thruster adapted to be mounted to a boat at an operating location, said thruster comprising:

a) a central thrusting section which has a lengthwise axis and comprises a central housing that defines a through passageway and two oppositely positioned outer end portions, each of which defines an end opening;

b) a propeller section positioned in said through passageway;

c) two extension members that are positioned at opposite sides of the central housing, with each extension member having an inner end portion adjacent to a related one of said outer end portions of the central housing and extending outwardly therefrom, each extension member having a lower perimeter edge portion which is located at an elevation lower than the upper portions of the end openings of the center housing, each extension member having a downwardly facing surface that defines a flow passageway at the downwardly facing surface, said flow passageway

having an inner end flow passageway portion adjacent one of the end openings of the center housing;

d) each extension member having a perimeter flange connected to, and positioned around at least a substantial portion of the lower perimeter edge portion of the extension member, with the perimeter flange positioned with a substantial horizontal alignment component from the lower perimeter edge portion to extend into the surrounding water;

e) said thruster being configured and arranged, so that with the thruster located in an operating position with the thruster operating to provide a lateral thrust, the two extension members have their lower perimeter edge portions located so that as water flows by the lower perimeter edge portions and into one of the end openings of the center housing, ambient air is substantially prevented from being entrained in the water entering into the center housing.

50. (previously presented) The thruster as recited in claim 49, wherein each end opening of the housing is defined by a surrounding rim, and at least a substantial portion of the perimeter edge portion of the extension member which is adjacent to that surrounding rim is below an uppermost portion of said surrounding rim by a distance between about one quarter to three quarters of a depth dimension of the end opening defined by the surrounding rim.

51. (previously presented) The thruster as recited in claim 49, wherein each end opening of the housing is defined by a surrounding rim, and at least a substantial portion of the perimeter edge portion of the extension member which is adjacent

to that surrounding rim is below an uppermost portion of said surrounding rim by a distance that is at least about one-half of a depth dimension of the end opening defined by the surrounding rim.

52. (previously presented) The thruster as recited in claim 49, wherein each end opening of the housing is defined by a surrounding rim defining the end opening, each of said end openings having a depth dimension, each extension member having an inner end portion adjacent to its related end opening, an outer end portion, and a length dimension from said inner end portion to the outer end portion, with a length dimension from said inner end portion to said outer end portion of the extension member being at least as great as the depth dimension of its related end opening.

53. (previously presented) The thruster as recited in claim 52, wherein said length dimension is at least as great as one and one-half times said depth dimension.

54. (previously presented) The thruster as recited in claim 49, wherein each end opening of the housing is defined by a surrounding rim having a depth dimension, each of said extension members having a maximum width dimension extending from one side of said extension member to the other side thereof, said maximum width dimension being at least about equal to or greater than the depth dimension of the end opening of the housing adjacent to that extension member.

55. (previously presented) The thruster as recited in claim 49, wherein each of said extension members has its downwardly facing surface shaped to have a greater depth dimension at said inner end flow passageway portion and a lesser depth dimension at an outer end portion of said extension member.

56. (previously presented) The thruster as recited in claim 49, wherein each end opening of the housing is defined by a surrounding rim, and at least a substantial portion of the perimeter edge portion of the extension member which is adjacent to that surrounding rim is below an upper portion of said surrounding rim.

57. (previously presented) The thruster as recited in claim 56, wherein said substantial portion of the perimeter edge portion of each extension member is below the upper portion of the surrounding rim by a distance that is at least about one-half of a depth dimension of the end opening defined by the surrounding rim.

58. (previously presented) The thruster as recited in claim 56, wherein said substantial portion of the perimeter edge portion of each extension member is below the upper portion of the surrounding rim by a distance between about one-quarter to three-quarters of a depth dimension of the end opening defined by the surrounding rim.

59. (previously presented) The thruster as recited in claim 49, wherein each end opening of the housing is defined by a surrounding rim defining the end opening, each of said end openings having a depth dimension, each extension member having an inner end portion adjacent to its related end opening, an outer end portion, and a length dimension from said inner end portion to the outer end portion, with a length dimension from said inner end portion to said outer end portion of the extension member being at least as great as the depth dimension of its related end opening.

60. (previously presented) The thruster as recited in claim 59, wherein said length dimension is at least as great as one and one-half times said depth dimension.

61. (previously presented) The thruster as recited in claim 49, wherein each end opening of the housing is defined by a surrounding rim having a depth dimension, each of said extension members having a maximum width dimension extending from one side of said extension member to the other side thereof, said maximum width dimension being at least about equal to or greater than the depth dimension of the end opening of the housing adjacent to that extension member.

62. (previously presented) The thruster as recited in claim 49, wherein each of said extension members has its downwardly facing surface shaped so the flow passageway has a greater depth dimension at said inner end flow passageway portion and a lesser depth dimension at an outer end portion of said extension member.

63. (previously presented) The thruster as recited in claim 62, wherein said flow passageway has an inward and upward slope to said inner end flow passageway portion.

64. (previously presented) The thruster as recited in claim 63, wherein the downwardly facing surface of the extension member forms a hydro-dynamically contoured surface that is generally curved upwardly and inwardly to the opening of the housing.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Donald Bruce McDugle	Art Unit:	3617
Serial No.	10/726,465	Examiner:	
Filed:	December 02, 2003	Cust. No.	22931
For:	BOAT THRUSTER APPARATUS AND METHOD	Attorney Ref. No.:	P114519

MAIL STOP Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Certificate of Mailing (37 CFR 1.8a)

I hereby certify that this document (along with any document referred to as being attached or enclosed) is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on date shown below.

September 8, 2004
Date

Carole Petrelli
Carole Petrelli

DECLARATION

I, Donald Bruce McDugle, having a home address of 1319 15th Street, Anacortes, Washington 98221, state and aver the following:

1. I am one of the co-inventors in the above noted patent application, namely U.S. Patent Application S.N. 10/726,465, entitled "Boat Thruster Apparatus and Method", filed on December 2, 2003. This application claims the benefit of an earlier provisional application, containing substantially the same subject matter as in the later above noted patent application, this provisional application having been filed on December 6, 2002.

2. I have been asked by Mr. Robert Hughes, who is the patent attorney who has prepared both the provisional application

noted above also the follow on nonprovisional application (U.S. Serial Number 10/726,465) to provide information relating to activities relating to the above noticed provisional application and a follow on nonprovisional application. More specifically, I have been asked by Mr. Hughes to provide information concerning events which occurred prior to December 6, 2001, which is one year prior to the filing of the provisional application on December 6, 2002 and also to related events occurring after December 6, 2001.

3. I have been employed by Cap Sante Marine Ltd. since approximately Sept. 16, 1992 (give date or approximate date). During my employment at Cap Sante Marine Ltd., I have been engaged in a variety of activities, such as

Fiberglass repair tech.
Fiberglass shop Foreman
Bid and estimate writer
Research and develop-ment
Crew training
Speaker and boat shows/rendezvous

(summarize briefly the nature of your work such as installing different equipment, trouble shooting, etc.).

4. For at least the last twenty years, part of my work has been related to "side thrusters", which are used in boats and are

commonly referred to as "thrusters". These thrusters are placed in the water adjacent to the stern of the boat, and they produce thrust laterally in both directions so that when the boat is either stationary in the water or travelling forwardly at a slow speed, the stern of the boat can be moved to one side or the other by means of the thruster. Because of my work activities related to thrusters over the years, I have acquired in this industry a reputation of having expertise in this area.

5. If the draft of the boat is sufficiently deep, the thruster can be mounted at a stationary position on the stern of the boat. Thus, when the boat is traveling forwardly at a higher velocity, the thruster will be out of the water stream. However, if the draft of the boat is relatively shallow, the positioning of the thruster would have to be at a sufficient depth in the water so that when the boat was traveling at higher speeds, the thruster would remain in the water. Therefore, there have been thruster designs where the thruster is moveable from a lower deployed position at which the thruster is operated, and an upper position so that the boat can travel forwardly through the water without having the thruster being immersed in the water.

6. These thrusters which are moved between positions out of the water and under the water are rather expensive. Accordingly over the last several years I have been thinking of ways to eliminate the need for lifting the thruster out of the water. One of the concepts which I came up with some time prior to

December, 2001, is providing a thruster that had the center part of the thruster at a relatively high location at the stern of the boat, and then at the two sides of the center member of the thruster, there would be oppositely positioned horn shaped water inlet/outlet tubes which would extend from the side inlet portions of the central portion of the thruster laterally, then at a downward slant, and then at a lateral slant. This configuration can also be called a "lazy S". The thruster should be positioned so that the inlet/openings are at a sufficient depth below the water. The reason for this is that if the inlet/outlet opening is to close to the water surface, as the water flows into the inlet/outlet opening, air will be entrained in the water and the thrusting force would be substantially reduced. The lazy S-shaped attachment would in the operation position be located so that its outer side inlet/outlet openings would be at a lower position in the water. Then when the boat is traveling forwardly at a higher speed, the two attachments would be rotated 180 degrees so that the laterally outward part of the attachment would be out of the water.

7. In the later part of the summer of 2001 (e.g. on or about September), Mr. Robert Murch came to see me at Cap Sante Marine Ltd., and we met in my office at Cap Sante Marine Ltd. He told me that I have been referred to him by one or more sources as someone who had expertise in the subject of thrusters for boats. He wanted a stern thruster for his boat, which was a 37 foot Nordic tug. I told him about some of

my ideas about how a thruster could be possibly be installed on a boat such as his (the boat has a rather shallow draft). I discussed with him my concept of the horn shaped device (described above and also referred to as the "lazy S configuration"). Mr. Murch was not too enthused about that. I also discussed with him another possible configuration which was what I call a "shroud" or "shield" which would have a connecting end extending about half way around the inlet/outlet opening of the central cylindrical member and would slope downwardly and laterally outwardly, and having a interior concave surface that formed a passageway leading from a lower location upwardly at a slant and into the outlet/inlet of the central position of the thruster.

8. Then after this discussion which took place in my office, Mr. Murch and I walked down to Mr. Murch's boat and spent about 45 minutes looking at the dimensions of the boat, and how this concept might be incorporated in Mr. Murch's boat. Mr. Murch then asked me how much it would cost, and I asked him to let me take a half hour to do some calculations. I went back to my office where I could use the adding machine and came back. I gave Mr. Murch a figure of labor and materials of $9700.00. I was honest with Mr. Murch in telling him that I had not built or tried this concept on a boat, and I did not know whether or not it would work properly, work poorly or not work at all. We also agreed that whether the concept worked or not, Cap Sante Marine Ltd. would still get paid the $9700.00 for labor and

materials. Mr. Murch and I both agreed at that time that he was paying for labor and materials and if it didn't work there would be no repayment of money. It would simply be a busted experiment and Mr. Murch would simply have to take a loss. It was also recognized by both of us that it was a first prototype, and quite possibly additional work, repair or design changes may need to be made. Further, I wanted to be kept abreast of how the thruster would be operating and what the defects might be, since I would want to avoid mistakes in making a later prototype. Accordingly, we agreed that I would give him follow-up support in having the modifications made as needed, provided that he would pay at least the out of pocket expenses for parts. Accordingly, Mr. Murch wrote me a check for $1500.00 as a down payment and after that I undertook the task of constructing what I will call the "thruster assembly" which is made up of the central thruster and the two shrouds which are connected on opposite sides of the thruster housing. Work began shortly after that, and I enlisted the aid of Kevin Pattison, another Cap Sante Marine Ltd. employee, to work with me in building the thruster assembly.

9. I felt that we were very fortunate to have this opportunity to make a prototype of this design. In a project such as this, it is not simply manufacturing a piece of apparatus. Rather, it is designing the apparatus so as to be used in combination with the structure of the boat. Thus, the configuration of the apparatus and its dimensions had to be compatible so that in

the thrust mode of operation the thrust assembly needs to operate effectively within the limits dictated by the configuration of the stern in the boat and its draft at the stern. While in the cruise mode, the thrust assembly should be positioned so as not to interfere with the water stream traveling under the boat. Accordingly, I regarded this as a rare opportunity to be able to build a prototype and try it out on an actual boat. I regarded this construction of the first prototype as an experiment to find out first if it would work at all for us and secondly to ascertain its performance, and to see what adjustments could be made to improve its performance.

10. It took us about 3 weeks to complete the construction of the prototype. Attached to this declaration are two drawings which illustrate the thruster assembly which was installed as a first prototype. Reference is first made to Figs. 2 and 3. Fig. 2 is a view looking at the rear transom of the boat with the thruster assembly mounted at the lower middle part of the transom, and Fig. 3 is a side elevational view of the boat also showing the thruster assembly in its installed position. To describe briefly the main components, the boat 10 comprises a rear transom 12 and a bottom wall comprising right and left sections 16 and 18. The water level with the boat being stationary is indicated at 20. The thrust assembly 22 comprises the central thrusting portion 24 and two extension members or shrouds 26 which extend from opposite ends of the central thruster portion 22. The

central thrust portion 22 comprises a cylindrical housing in which is positioned a propeller to move the water laterally through the housing 28. Each of the shrouds or extension members 26 comprises a connecting portion which has a semi-circular configuration, indicated at 30, and a main portion 32 which extends laterally at a downward and outward slope, with a concave interior curve. This main portion being designated 32. As shown in Fig. 3, the center thrust portion 24 is positioned so that the center of the central thrust portion 24 is at about the same level as a lower midline 34 of the bottom of the boat. There is a motor 36 positioned in the lower rear portion of the boat hull, and the drive part of this motor 26 extends through the lower middle portion of the boat hull to connect to the central thrust portion 24 of the thrust assembly 22. The upper surface of the central thrust portion 24 is positioned about four inches below the water surface 20, and the lower-most surface portion of the central front thrust portion 24 w about three to four inches below the adjacent bottom surface portion of the transom, this being illustrated in Fig. 2. The outer end tips 38 of the extension members 26 are positioned at about the level of the lower wall 18 at the location of the transom 12.

11. In making this installation, there were a number of problems to be solved. Initially, I did not think that the upper surface portion of the central thrust portion 24 should be too close to the water surface, so it was placed four inches down from the water

surface. The diameter of this central thrust portion 24 was about eight inches. It was necessary to cut out the back part of the boat in the middle portion to make room for the thrust motor to connect to the central thruster portion, and we placed fiberglass and putty in that opening to plug the opening and also to properly position the thrust assembly 24. Since the central part of the thruster assembly was below the surface of the boat, we filled the area at the boats bottom and forwardly of the thruster assembly with a putty wedge to ease to flow of water downwardly and under the thruster.

12. On November 16, 2001 Mr. Murch was planning to come to Cap Sante Marine Ltd. to review the installation of the thrust assembly. Accordingly, Kevin Pattison and I took the boat into the water for a trial run. Mr. Pattison was driving the boat, and I was leaning over the back part of the hull to watch the flow of the water pass the thrust assembly 22. I observed that the water passing under the thrust assembly was adhering to the surface of the cylindrical housing 28 and it was actually turning the water in more than a 90 degree angle going upwardly and into the rear part of the boat. Mr. Pattison and I took he boat back to the dock and then as a temporary fix we glued a lip of putty (indicated at 40) extending along the rear middle portion of the cylindrical housing 28, and this deflected the water, and I fully recognized at that time that this was merely a temporary solution and would have to be fixed in some other way. Late

that afternoon, Mr. Murch arrived at the Cap Sante Marine Ltd. plant. He drove the boat in the water with us, and returned to the dock. He stated that he would take the boat as it is he paid us the amount owing to us and drove the boat away. Mr. Murch is a highly skilled mechanical engineer, and he spends much of his time on jobs in different parts of the world. Also, he is quite handy with tools and is quite capable at various hands on projects. Further, he is more of a reserved person and does a lot of thing on his own. Subsequent to that time, I made several follow-up inquiries to Mr. Murch and was not able to reach him. After about four to five months after his taking the boat, I was able to make telephone contact with Mr. Murch. I can't remember whether I called him first or if he called me first, or whether it might have been that I had called him and he was returning my call. However, he had problems in several areas. He was having trouble with moisture in the bottom part of the hull and also trouble with the motor. I had indicated what I thought the problems were, and I ordered the parts that I felt would be necessary to make the necessary repairs. I believe we rebuilt the motor at least twice. My personal point of view was that I wished that after our initial trial run he had not decided to take the boat himself. I would have liked to have kept the boat with the thruster for at least a short time so that I could make some adjustments or modifications which I felt possibly be needed.

13. On or about (insert date 12/10/01), another Nordec tug owner came to me with a stern thruster request and we agreed on a price to make and install our thruster assembly. Several adjustments were made from the first prototype. Also, it was beneficial that we had substantially the same design of a boat to work on the second time around. One adjustment that was made was that the thrust assembly was moved upwardly about two inches closer relative to the bottom surface at the stern. However, the central thrust portion still protruded a short distance below the lower surface of the bottom of the boat, and thus was in the flow stream beneath the boat. Accordingly, it was still necessary to place the fiberglass/putty wedge on the bottom of the boat forwardly of the thrust assembly to streamline the flow. It turned out, we had not totally resolved the problem of the water flowing upwardly in a curve around the rear surface the thrust housing, so we took steps to isolate the thrust motor from the water. Also, the original contour of the extension members was that these were cut from a cylindrical pipe section, and thus there was an abrupt 30 degree angle connection to the central housing of the central thrust portion 24. This was modified by making the lower concave surface of these extension members in more of a regular circular configuration10.

14. We were able to measure the performance of this second prototype in an indirect way by determining how rapidly it could

move the rear of the boat laterally. It was clear that there was a definite improvement in the thrusting ability over our first prototype. Further, based upon our observations of the water flow, there was not any ingestion (or at most a very significant ingestion) of ambient air. All of the transactions involving this second prototype occurred after December 6, 2001. However, I did not regard this as a design ready for implementation as an end product, but essentially a handmade one of a kind prototype which would quite possibly require modifications.

15. On or about Feb 2003 a 42 foot Nordec tug owner contacted me to provide him with one of our thrust assemblies. In constructing this third prototype, based upon what we learned from making the first two prototypes, we moved the thrust assembly further up the transom so that in the cruise mode the lower part of the central housing portion was not at all in the water-stream. This had at least two benefits. First, it solved the problem of the water flow during cruise adhering to the bottom and back curved surface of the housing for the central thrust portion so that we had no need for the deflecting lip. Further, the aesthetics of the uninterrupted flow stream of the wake surface passing from beneath the boat was a substantial advantage. Also, it was observed that there was no deterioration in the ability of the thrust assembly to function to provide the full thrust.

16. After building and testing this third prototype, I believe we were at a stage where we were very close to having a commercial product. Then we made a fourth prototype and in this instance, we added a laterally extending flange having a width dimension of about one inch around the perimeter of the two extensions. We found that this made an improvement in the flow pattern of the water so that there was less pressure loss and less turbulence in the water entering into the partial passageways defined by the extensions. In observing the water flow, this laterally extending perimeter flange would split the water flow in a manner so that the water above the flange would flow more easily over the extensions and the water below the flange would flow more evenly into the partial passageways provided by the extensions. We ascertained that there was a definite increment of increase in the thrust. Overall, during the development stage beginning with the original prototype that we made and ending with the fourth prototype, in observing the ability of the boat to move laterally by means of the thrust assembly, I am reasonably confident in saying we increased the effective thrust as a minimum by 50% and quite possibly as much as 100% over our first prototype. We do not have precise measurements of this, and this is based upon our observations of the ability to move the boat sideways which would of course have a proportional relationship to the thrust provided by the thrust assembly.

I, Donald Bruce McDugle, hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and, further, that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application thereon.

EXECUTED this 23 day of August, 2004.

Donald Bruce McDugle

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Donald Bruce McDugle	)	Art Unit:	3617
Serial No.	10/726,465	)	Examiner:	Ed Swinehart
Filed:	December 02, 2003	)	Cust. No.	22931
For:	BOAT THRUSTER	)	Attorney	Robert B. Hughes
	APPARATUS AND METHOD	)	Ref. No.:	P114519

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Date: September 6, 2006

/ Barbara Galloway /
Barbara Galloway

DECLARATION

I, Donald Bruce McDugle, having a home address of 1319 - 15th Street, Anacortes, Washington 98221, state and aver the following:

1. I am one of the co-inventors in the above noted patent application, namely U.S. Patent Application S.N. 10/726,465, entitled "Boat Thruster Apparatus and Method", which was filed on December 2, 2003, and claims the benefit of an earlier filed provisional application, containing substantially the same subject matter as in the later above noted patent application, this provisional application having been filed on December 6, 2002.

2. In the latter part of July, or early part of August, of 2004, I was asked by Mr. Robert Hughes, who is the patent attorney who has prepared and filed both the above noted provisional application and the above-noted non-provisional application, to provide certain information relating to the conception and development of the subject matter of the above provisional application and the present follow-on application. I provided Mr. Hughes with the information, and he assembled the information in the form of a Declaration. I reviewed that Declaration prepared by Mr. Hughes to see if any corrections and/or additions should be made, and I signed that Declaration on August 23, 2004. I understand that the Declaration was submitted, along with other documents, to the U.S. Patent and Trademark Office for entering this into the record of the prosecution of the above-noted non-provisional application.

3. I have now been asked by Mr. Hughes to provide some additional information to supplement my Declaration signed on August 23, 2004. In providing the additional information I will in some instances be making reference in this present Declaration to information that is disclosed in the earlier Declaration. Accordingly, for the convenience of the reader, all of the pages of my earlier

August 23, 2004, Declaration are being attached to this present Declaration which is now being prepared,

4. Mr. Hughes has asked me to again review particularly the subject matter of Sections 4 through 12 of my earlier August 23, 2004, Declaration, and more specifically, relative to the proposed design where the thruster has what I call a "shroud" or "shield", this being the design that Mr. Murch selected when he came to see me in September of 2001. I completed that review, and Mr. Hughes has asked me the following question.

> "If Mr. Murch had not contacted you in September of 2001, did you have sufficient confidence at that time (i.e., September of 2001) in the design of a thruster with the "shroud design" installed on the thruster so that you would believe it would be a sensible commercial venture for you or someone else to contact a possible customer to sell him a thruster with this shroud design which has yet to be designed and manufactured?"

5. My answer to Mr. Hughes' question in the above section 4 is "absolutely not", and I think that is very clear from the statements I have made in my earlier Declaration. However, before giving my

reasons for this answer, I believe it would be helpful for the reader of this Declaration to first review at least Sections 7 through 8 of my earlier Declaration.

6. To now give an explanation for my answer of "absolutely not" that appears in the first sentence of Section 5 of this declaration, first, I would like to point out that I did not solicit a sale from Mr. Murch. Rather Mr. Murch had contacted me because he had heard that I had some expertise in this field of thrust reverse, and I first told him of some possible designs that I had thought of off and on.

7. When Mr. Murch decided he was interested in the "shroud design", as indicated in Section 8 of my earlier Declaration, I was honest with Mr. Murch that I did not know whether or not this approach of the "shroud design" would work properly, work poorly, or not work at all. Accordingly, when we made the arrangement where I would be paid Nine Thousand Seven Hundred Dollars ($9,700.00) for labor and materials, and we also agreed that even if it did not work at all, I would still get paid the Nine Thousand Seven Hundred Dollars.

8. For me it was great opportunity, in that if this experiment turned out to be a total bust, I would still get paid at least for my initial wages. However, I was still taking some financial risk, and maybe a

substantial financial risk, since I could have been obligated to do some follow on work on redesign, repair, try other configurations, etc. with no payment for wages. Therefore, in answer to Mr. Hughes' question, I not only would not feel justified in soliciting a customer to sell him a thruster under the circumstances recited above, but I think it would be rash for me or anyone else to do so.

8. Mr. Hughes has also asked me to answer this question,

> "Were you motivated to enter into the arrangement with Mr. Murch more as a commercially beneficial arrangement for you or were you motivated more as an experimental arrangement to test the design and also develop it."

Without a doubt, my answer is that substantially my entire motivation was for purposes of experimentation and I believe that is very clear from my earlier Declaration. I also had to recognize that it was quite possible I could have been obligated to put in many more hours than the hours for which I was being paid out of the Nine Thousand Seven Hundred Dollars agreed upon if I had to do further design and experimentation. In fact, if the situation were such that Mr. Murch had not immediately taken the thruster as it was and

driven off, I would have gone on with further experimentation with the thruster on his boat (as I did later) before I had a commercially viable product.

I, Donald Bruce McDugle, hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and, further, that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application thereon.

EXECUTED this 6 day of September, 2006.

Donald Bruce McDugle

Donald Bruce McDugle

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bruce McDugle	)	Art Unit:	3617
Serial No.	10/726,465	)	Examiner:	Edward Swinehart
Filed:	December 02, 2003	)	Cust. No.	22931
For:	BOAT THRUSTER APPARATUS AND METHOD	)	Attorney Ref. No.:	P114519

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August 27, 2007

/Stephanie Brown/
Stephanie Brown

APPEAL BRIEF

The Notice of Appeal was filed on June 21, 2007 and this Appeal Brief is due today, August 27, 2007. The $250 filing fee is included for the filing of the Appeal Brief. It is believed that no other fee is due at this time to maintain this application in full force and effect. However, if any such fee is due, please charge this to Deposit Account No. 08-3260. Included herewith is a 27 page Appeal Brief and an Appendix showing a clean set of claims as currently amended, as well as two Declarations by the inventor.

I. Party in Interest.

The sole owner of this patent application is the appellant, namely, the assignee of record Cap Sante Marine, LTD having the assignment Reel/Frame 014604/0071

II. Related Appeals and Interferences.

The appellant is unaware of any other appeals or interferences that would have any effect or have any bearing on the Board's decision in this appeal.

III. Status of the Claims.

Originally, claims 1-64 were presented to the Examiner within the application, and of these 64 claims, all have been finally rejected.

IV. Status of Amendments.

No amendments have been filed subsequent to the final Office Action.

V. Summary of the Invention.

The thruster apparatus and method of the embodiments of the present invention alleviate various problems encountered with positioning prior art thrusters at the transom of boats, and make it possible to position the thruster at a relatively high position in the water and yet prevent entrainment of air into the water stream that flows through the thruster. This enables the thruster to be used with boats that have a relatively shallow draft, so that the thruster properly performs its functions of providing adequate thrust, but also does not encounter contact with the transom wake surface.

The thruster is adapted to be mounted at an operating location at a transom of the boat, the boat having a bottom, side wall sections, and with rear edge portions adjacent to the transom, and also a water line at the transom.

In these embodiments, the thruster comprises a central thrusting section which has a central lengthwise axis and comprises a center housing defining a through passageway that is generally aligned the lengthwise axis. The center housing has two

oppositely positioned outer end portions, each of which defines an opening leading into the passageway. A propeller section is positioned in the through passageway.

There are two extension members that are positioned at opposite sides of the central housing, with each extension having an inner end portion adjacent to a related one of the outer end portions of the housing and extending outwardly therefrom. Each extension member has a lower perimeter edge portion which is located so that with the thruster in its operating position, the perimeter edges are below the water line of the boat.

Each extension has a lower downwardly facing generally concave surface that defines a partial flow chamber and is contoured to provide a partial flow passageway which leads upwardly and inwardly within the concave surface to an adjacent one of the outer end openings of the central housing.

The thruster is configured and arranged so that with the thruster located at the transom in its operating position, when the boat is traveling at sufficiently high speed through the water to cause the water to separate from the transom and form a transom wake surface, lower and outer end portions of the thruster are substantially clear of water that is at the transom wake surface. Also, the thruster is configured and arranged so that when the thruster is operating and the boat is stationary in the water or traveling at a sufficiently low speed so that the water does not separate from the transom to form a transom wake, the two extension members have their lower edge portions at a sufficient depth and also located so that as water flows by the lower perimeter edge portions and into one of the end openings of the center housing, ambient air is substantially prevented from being entrained in the water and entering into the passageway of the center housing.

In the method of the present invention, the thruster is provided as recited above, and is also positioned in its operating position adjacent to the transom. When the boat is stationary in the water or traveling at a sufficiently low speed so that water does not separate from the transom to form the transom wake, the thruster can then be operated by operating the propeller section to cause water to flow through the passageway of the central housing, thus providing a thrust. The inlet into which the water is flowing draws water from beneath the water surface in a manner that as water passes from locations

proximate to the lower perimeter edge portions of the extension members and around the perimeter edge portions of the extension members, ambient air is prevented from entering into the passageway of the central housing.

The flow of the water rearwardly from the lower edge portions 58 of the transom 14 when the boat is traveling at a speed which would be in excess of, for example, about four to five knots, this being the speed where the water separates from the transom so that as the boat travels through the water, and the surface of the water passing by the lower rear edge portions 58 of the lower surface portions 56 travels in a moderately upward and rearward slant, with the flow of this water converging toward a center location.

In this description, this water surface will be called a "transom wake surface." This transom wake surface will become flatter (have less slant relative to the horizontal) as the boat is moving at a higher velocity. If portions of the thruster 10 extend into the transom wake surface, this can cause unwanted additional drag. Also, if a portion of the thruster 10 is extending into this transom wake surface, such as the outer edges of the extension members 18 and 20, this can cause something of a "rooster tail" in the water which in addition to the drag is objectionable because of the "aesthetics" of the boat cruising in hopefully a streamline manner through the water.

The thruster 10 also has a perimeter flange 86 which is part of the lower perimeter edge portion 70 and is horizontally aligned and located at the mid-height of the passageway 24, so that it has outer end flange portions 88 at the two outer end portions of the extension members 18 and 20, rear outer flange portions 90 at the rearwardly positioned perimeter edges 70 of the extension members, and also a central flange portion 92 extending along the rear mid-height of the central housing 22. In this particular embodiment, the width of the perimeter flange 86, indicated at 94, is about one inch, but obviously this dimension could be increased or decreased substantially. Thus, the overall width of the extension members 18 and 20 may be at least as great or greater than the width of the end openings 30 and 32 of the housing 22.

Let us now assume that the thruster 10 is to be operated to move the stern of the boat either to starboard or to port. Both of the propellers 96 are operated under power to cause them to rotate and provide a thrust, and the propellers 96 rotate together in

either direction of rotation. In this particular instance, let us assume that the thrust is such that the water will enter the opening 30 at the right end portion 26 of the central thrusting section 16, and that the water is exiting at the left opening 32 of the central thrusting section 16. With the thruster being positioned closely adjacent to the waterline, air is entrained into the passageway of the thruster through which the water flows, thus causing a loss of thrust. However, in the configuration with the present invention, this does not occur. Rather, the flow of the water into the end opening 30 is taken from surrounding water which is sufficiently below the water surface and also sufficiently spaced from the end opening 30, so that atmospheric air from the air immediately above the waterline 60 is not entrained in the water flow which travels into the opening 28. Further, it has been found that the flow of the water is such that this flow is substantially non-turbulent, so that the cross-section of any segment of water passing through the passageway 24 in the area of the propellers 96 is sufficiently uniform across its transverse cross-section, that the propeller is able to operate in the water stream to provide maximum or near maximum thrust that is potentially available.

To proceed with this explanation, as soon as one of the propellers 96 begins operating, these create a pressure drop at the location of the end opening 30, and this causes the surrounding water to move toward the opening 30. In Fig. 2, there are drawn several arrows 108 to demonstrate generally this flow pattern. Also, in Fig. 4, there are arrows 109 indicating this flow pattern as seen from a top plan view, but with the propellers 96 turning in the opposite direction so that the flow is in the opposite direction.

Now, let us consider the water which is closer to the upper surface of the body of water. The two extension members 18 and 20 provide a shield or barrier for the water that is immediately above the areas adjacent to the two inlet openings 30 and 32. Also, it needs to be recognized that the water pressure increases as the depth increases. With the atmospheric pressure at sea level being approximately 14.7 pounds per square inch, the water pressure at a little greater than one-half foot down is about 0.025 pounds per square inch greater. Therefore, there is more pressure acting on the water at a lower depth to move it to the reduced pressure area of the inlet 30 or 32. For the atmospheric air above the water level to be drawn into the water so as to pass into

either of the inlets 30 and 32, there must be sufficient pressure to move the surface water downwardly toward the mid-height of the openings 30 and 32. Experimental results have been demonstrated by observing the flow patterns of the water at the surface while the thruster is positioned as shown in Fig.1 and operating at full thrust, that there is no perceptible inflow from the water adjacent to the upper water surface downwardly and into either of the inlets 30 and 32 that is drawing in water at that time.

Further, if there is any such inflow, it is sufficiently small so that there is no significant loss of thrust. It has been observed that when the configuration of the present invention is utilized and the thruster is at the location as shown in Fig. 1, there is no perceptible loss of thrust in comparison with the thruster being operated without the extension members 18 and 20 and at a lower level where its upper surface portion is at a distance of one diameter of the inlet opening below the surface.

As indicated earlier, another factor is the positioning of the thruster 10 relative to the transom wake surface that originates at the lower transom edge portions 58. In the configuration of this first embodiment, there are at least four locations of the thruster 10 that are of concern. First, there are the two outer end locations 88 of the perimeter flange 86. Second, there are the two outer lower edge portions of the rim 34 of the housing 22. These locations should not be positioned so that they would be in the path of the transom wake surface. Thus, there can be considered something of an "envelope" in which the thruster 12 must fit. This envelope is defined at the lower side by the two slanting portions of the transom wake surface, determined by the location of the transom lower edge portions 58, and in the upper part by the water level 10. The water level 10 is not necessarily the absolute upper limit to the envelope, since there is some variability in how far up the thruster can be positioned relative to the water surface 60.

In Figs. 7 and 8, there are given the dimensions of one exemplary embodiment which has been found to be suitable. The overall length dimension 110 between the outside end edges 88 of the flange 86 is 34 inches. The vertical dimension (i.e., the diameter) of the inside surface of the passageway 34 is indicated at 112, and this is 7.3 inches. The distance 114 from the lower edge of the outer flange portion 88 (or of the lower edge of the extension 18a and 20a of Fig. 6), up to the level of the upper part of

the inner surface 78 of the passageway 24, is 3.65 inches. The length 116 between the two inlet openings 30 and 32 is 12 inches, so that each of the extension members 18 and 20 has a length of eleven inches. Thus, the ratio of the depth of the end openings 30 and 32 to the length of the extension members may be at least one to one or at least as great as one to one-half.

This thruster 10 has been found to be suitable for a smaller boat having a distance between the outer edges 50 of the two bottom portions 58 of 84 inches, this distance being indicated at 118 in Fig. 8. The vertical distance from the level of the outer edge 50 to the level of the bottom mid-location at 58 is indicated at 120 and is about 9 inches.

As the boat becomes larger or smaller, and as the vertical distance between the waterline 60 and the bottom surfaces 56 becomes greater or less, these dimensions of the thruster can also be modified.

In this embodiment shown in Figs. 1-4, the dimension 110 between the outside edges 88 (or between the outside edges of the extensions 18 and 20 of Fig. 7), of flange 86 is forty percent of the distance between the outer edge portions 50 of the hull. The length 116 between the two inlet openings 30 and 32 is about fifteen percent (i.e., 3/20) of the distance 110 between the outer edges 50 of the rear portions of the two bottom portions 58 of the hull. The vertical dimension 112 of the inside surface of the passageway 34 is about 82 percent of the vertical distance 120 from the level of the outer edge 50 of the rear portions of the hull bottom portions 58 to the level of the bottom mid location at 58.

The lengthwise dimension 116 between the two inlet openings 30 and 32 is about thirty-six percent of the distance 118 between the outside end edges 82 of the flange 86 (or between the outside edges of the extension members 18 and 20).

The vertical dimension 114 from the lower edge of the outer flange portion 88 (or the lower edges of the extension members 18a and 20a) up to the level of the upper part of the inner surface 78 of the passageway 24 is about fifty percent of the vertical dimension 112 of the inside surface of the passageway.

These ratios can vary, depending upon the configuration of the hull and the thruster.

This forty percent value could be between forty-two to thirty-eight percent, or could vary between thirty percent to forty-five percent, and within a broader range in five percent increments down possibly as low as thirty to twenty percent, and upwardly in five percent increments as high as possibly sixty to seventy percent.

The fifteen percent of value would depend on large part on the basic construction of the thruster, and could be as low as possibly thirteen percent, eleven percent, nine percent, and seven percent or lower, and could increase also in two percent increments to twenty-five percent, and from five percent increments as high as forty percent or higher.

The eighty-one percentage value could increase possibly in one percent increments up to ninety percent, or possibly decrease to a value as low as about 3/4 or 2/3, depending on other relative dimensions. The thirty-six percent value could be up to thirty-eight or forty percent, or in some situations, be higher in five percent increments up to fifty percent or sixty percent; or downwardly in two percent increments to thirty percent, and also possibly as low as twenty percent in two percent increments.

The fifty percent value conceivably decrease or increase in five percent increments up to seventy-five percent or downwardly in five percent increments to as low as twenty-five percent.

A second embodiment of the present invention is illustrated in Figs. 5 and 6. This second embodiment is substantially similar to the first embodiment, so for those components of the second embodiment which are the same as, or substantially similar to, the corresponding components of the first embodiment, there will be given the same numerical designations with an "a" suffix distinguishing those of the second embodiment. The main difference in the second embodiment is that the perimeter flange 86 of the lower perimeter edge portion 70 has been eliminated. In this instance, it would be possible to extend the dimensions of the walls of the two extension members 18 and 20 outwardly from the center of the thruster 10 and still be within the limits of the required envelope.

Since the limiting dimension in the distance between the outer edges of the extension member 18a and 200 is providing sufficient clearance from the transom wake surface, the limits of this dimension (which for the first embodiment is indicated at 110)

would be the same as the distance between the outer edges of the two extensions 18a and 18b.

In other respects, the components of the second embodiment are substantially the same as the corresponding components of the first embodiment, so that there is the central thruster section 16a, the propeller section 35a mounted to the passageway 24a, etc.

VI. Issues. The issues are the following:

1. Claims 30-38 are rejected under 35 U.S.C. 102 (b) as being anticipated by applicant's disclosed offer for sale of the claimed invention.
2. Claims 1-29 and 39-48 are rejected under 35 U.S.C.103(a) as being unpatentable over applicant's disclosed offer for sale of the claimed invention in view of Dan Ouden.
3. Claims 49 -- 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's disclosed offer for sale of the claimed invention in view of Stallman.

VII. Grouping of the Claims.

1. Claims 30-38 are grouped together.
2. Claims 1-29 and 39-48 are grouped together.
3. Claims 49 -- 64 are grouped together.

VIII. Arguments.

Response to Issue 1)

At Section 7 of the last Office Action, the Examiner noted that the Declarations filed on March 20, 2007 and September 11, 2006 under 37 CFR 1.312 were considered but were ineffective to overcome the offer for sale reference. The Examiner stated in the second full paragraph that there is no nexus between the invention as claimed and

the thruster as discussed in the Declarations. The Declarations identify a thruster which was simply sold and considered to be experimental use by way of applying the correct law regarding experimental use. The declarations are intended to be a recitation of fact as to what was sold at those times and the surrounding circumstances. The Examiner noted in the next sentence that the phrases "and to my knowledge of patent law" and "reads upon" render the statement attempting to show a nexus inadequate." It is not clear what the Examiner is referring to when discussing a nexus between the invention as claimed and the thruster as discussed in the Declarations. The Declarations are merely sworn statements to indicate the surrounding circumstances. One aspect of the Declarations is to indicate the modifications that were made in the course of the project, including modifications which occurred after the filing of the patent application. It is not clear why the Examiner is requiring a nexus between the invention as claimed and the thruster. In fact, the phrases that the declarants used, such as "and to my knowledge of patent law" as well as "reads upon" are merely honest statements by the applicants, who are not experts in patent law but are qualifying their statements to indicate that to their knowledge of patent law time they are making their assessments. In fact, a nexus between the invention as claimed and the thruster as discussed in the Declarations need not be present because, of course, there are alterations between the claims and the products that are developed by the Applicant.

The Examiner has taken issue with the degree of control which has been exhibited over the lateral thruster which was delivered to a Mr. Murch prior to the year of filing of the original provisional patent application which the present application claims priority upon. One of the factors for establishing experimental use is the degree of control, and the case law discussing experimental use is described in detail in the previous response by the applicant's Attorney.

A declaration by the inventor, Mr. McDugle, is attached herewith disclosing the various facts to the best of his recollection following the installation of the first rendition of the lateral thruster to Mr. Murch's boat.

Mr. McDugle's statements in paragraph 3 establish that there is a nexus between the apparatus attached to Mr. Murch's boat and the claims of the present patent application.

With regard to the degree of control, Mr. McDugle, as stated in paragraph 4, recalls attempting to contact Mr. Murch approximately five to seven times in the following months after the installation of the first rendition of the lateral thruster. He specifically recalls making contact with Mr. Murch three specific times, and as stated in paragraph 5, conducted post-installation improvements upon the first rendition of the lateral thruster. Mr. McDugle noted that he vividly recalls his attempts to contact Mr. Murch because due to the various improvements made to the later renditions of the lateral thruster, Mr. McDugle wanted to replace the original version on Mr. Murch's boat entirely.

Therefore, it is believed that the nature of this exercise of control by way of numerous communications, as well as follow-up improvements and attempts to entirely replace the first rendition, indicates the element of control over the experimental use lateral thruster. The previous Response discusses in great detail the numerous factors of recent case law related to experimental use, and given the additional information in the latest Declaration, in conjunction with the facts set out in the last Response (as well as previous Responses), it is strongly believed that the overall nature of this first prototype was that of experimental use.

With regard to the "on sale bar" this is discussed in the Manual of Patent Examining Procedure, § 2133.03 (b) "On Sale". For the convenience of the Examiner, the pertinent language is discussed below. Page 1, first paragraph:

> ... The on-sale bar of 35 U.S.C. 102(b) is triggered if the invention is both (1) the subject of a commercial offer for sale not primarily for experimental purposes and (2) ready for patenting, Pfaff v. Wells Elecs., Inc., 525 U.S. 55, 67, 48 USPQ2d 1641, 1646-47 (1998).

To put the case law in perspective as stated in the EZ Dock, Inc. v. Schafer Sys., Inc., case: "Before the Supreme Court's decision in Pfaff, this court used a multifactor,

'totality of the circumstances' test to enforce the on-sale bar." EZ Dock, Inc. v. Schafer Sys., Inc., 276 F.3d 1347, 1351 (Fed.Cir.2002).

Now with regard to the second prong of the above-noted test in Pfaff, the Supreme Court elaborated on two possible ways to satisfy this prong. Pfaff, 525 U.S. at 67, 119 S.Ct. 304. The Supreme Court explained that the second condition ready for patenting "may be satisfied in at least two ways: by proof of reduction to practice before the critical date; or by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." Id. at 59, 119 S.Ct. 304.

I bring up this background to present a clearer picture of the legal framework for the present issues. I noted in the Examiner's response on page 4 that the Examiner cited the 1989 Federal Circuit case, RCA Corp. v. Data Gen. Corp., and since that time, the legal landscape has changed somewhat due to the Supreme Court decision in Pfaff. To get a better visual of the prongs in their conjunctive and disjunctive nature in the hierarchical fashion, I attached herewith a quick visual map as Attachment A to provide a general gestalt of the issues.

Therefore, with an appreciation of how reduction to practice fits within the legal framework has one way of showing the second prong of the Pfaff case, there will now be a focused discussion upon the first necessary prong of the Pfaff case related to "the subject of a commercial's offer for sale not primarily for experimental purposes."

Therefore, I would like to elaborate upon the fact pattern and legal holding within the EZ Dock case, which found the commercial sale to be experimental and thus not invoking the 35 USC 102(b) bar.

With the regard to EZ Dock v. Schafer Systems, at 276 F.3d 1347, this case cites Pfaff, which is noted above, and of course relies upon the two-prong test to determine if USC §102(b) is invoked. Of course, the EZ Dock case was in appeal from summary judgment; however, the court nonetheless did not find that the stipulated facts rose to the level of finding a statutory 102(b) on sale bar.

Before Pfaff, reduction to practice was a central focus of both the on-sale bar and experimental use negation thereof. See, e.g., Seal-Flex, Inc. v. Athletic Track & Court Constr., 98 F.3d 1318, 1324, 40 USPQ2d 1450, 1454 (Fed.Cir.1996). The coincidence

of reduction to practice as a focal point for both aspects brought a symmetry, and often a simplicity, to the analysis. As stated in the RCA Corp case, an invention could be the subject of an experimental use anytime up to reduction to practice. RCA Corp. v. Data Gen. Corp., 887 F.2d 1056, 1061, 12 USPQ2d 1449, 1453 (Fed.Cir.1989).

Therefore, it can be appreciated that prior to EZ Dock and Pfaff, reduction to practice with the central focus; however, Pfaff changed the test for when an on-sale bar is triggered where the Supreme Court has positioned the factor of reduction to practice in the framework such as that shown in Attachment A.

With regard to the first prong of the Pfaff test, reference is made to the facts of the EZ Dock case, which are now listed below.

Facts Related to the First Prong of the Pfaff Test as Recited in EZ Dock Case

In general, the EZ Dock case related to molded dock sections coupled together with rubber male-type anchors. In this case, the following fact pattern was cited by the Federal Circuit:

> After Schafer established its *prima facie* case that the '055 patent was invalid due to an on-sale bar, EZ Dock put forth evidence to negate that evidence by showing that its sale to Mr. Greden was experimental. When Mr. Greden purchased his dock, EZ Dock was not yet selling any docks. Mr. Neitzke did not have a "for sale" sign, brochure, or any other markings to indicate that the docks he had in his office supply store were for sale. Rather, Mr. Greden initiated the purchase of the dock. Mr. Greden did not pay full market price for the dock. Moreover Mr. Neitzke added free equipment and free installation to the price he did charge Mr. Greden. This evidence creates a genuine issue regarding the

factual support for whether the inventors offered their invention for a commercial sale under market conditions in accordance with the first part of the *Pfaff* test. EZ Dock v. Schafer Systems, at 276 F.3d 1347, 1353.

Therefore, the relevant facts in this case include the following: the buyer and not the inventors initiated the sale, the buyer did not pay full market price, the inventors provided installation and equipment for free, the inventors visited the buyer's premises on several occasions, the inventors made free repairs, there was a need to test the invention for durability under the conditions at the buyer's premises, and the inventors changed the feature of the embodiment sold to the buyer.

Now referring to the facts of the present case, it can be shown that the first prong of the Pfaff test has not been reached.

Analysis

Reference is now made to the attached Declaration of one of the co-inventors, Mr. Bruce McDugle. This attached Declaration was executed on September 6, 2006, by Mr. McDugle, and there is also attached an earlier Declaration of Mr. McDugle signed on August 23, 2004.

In page of 3 of the attached latest McDugle Declaration of this September 6, 2006, Mr. McDugle made it very clear that if he had not entered into an arrangement such as with Mr. Murch (the purchaser), he would not have tried to engage in a commercial sale of this thruster what has yet to be designed and manufactured.

1. Purchaser Initiated Sale

Mr. McDugle also points out that he did not solicit a sale from Mr. Murch. Mr. Murch came to him and Mr. McDugle told Mr. Murch that he had had different ideas about how the thruster could be made to be compatible with boats with shallow draft, but he regarded these ideas as experimental and made that very clear to Mr. Murch.

2. Did Not Pay Full Price

Further, on pages 4 and 5, Mr. McDugle points out that he was also sticking his neck out financially in that he was obligated to do further design work if needed without receiving any compensation except for Mr. Murch paying for the out-of-pockets.

3. Inventor Followed up with Purchaser

The inventor made several calls to the purchaser thereafter, and as recited in paragraph 13 on page 11 of his Declaration on August 23, 2004, adjustments were made such as moving the thrust assembly upwardly two inches closer to the relative bottom surface of the stern. Further, other changes were noted to address the problem of water flowing upwardly in a curve around the rear surface of the thrust housing. Further modification was made for the lower concave surface of these extension members in a more circular configuration 10 as shown in the attached figure of his Declaration. It should be noted that paragraph 13 of the inventor's Declaration relates to actions for a second prototype.

4. Inventor Had Sufficient Control

With regard to the general nature of control of the first prototype, as recited in the inventor's Declaration of August 23, 2004 in paragraph 12, the inventor stated on November 16, 2001 that he and Mr. Murch met at the Cap Sante Marine Ltd. place of business, where Mr. Murch, along with the inventor and another employee Cap Sante, Mr. Patterson, were in attendance when the inventor observed water passing under the thrust assembly and noticed it was adhering to the cylindrical housing, and at this point there was a modification made to the apparatus. Such activity indicates additional control and testing over the prototype, indicating experimental use.

As recited in the middle portion of paragraph 12 on page 10 of the inventor's Declaration, the inventor made several calls to Mr. Murch, attempting to contact him thereafter. After contact, additional modification was made with the motor portion of the apparatus.

The Examiner has taken issue with the degree of control which has been exhibited over the lateral thruster which was delivered to Mr. Murch prior to the year of filing of the original provisional patent application which the present application claims priority upon. Of course, one of the factors for establishing experimental use is the degree of control, and the case law discussing experimental use is described in detail in the previous response by the applicant's Attorney.

Another declaration by the inventor, Mr. McDugle, is attached herewith disclosing the various fact to the best of his recollection following the installation of the first rendition of the lateral thruster to Mr. Murch's boat.

Mr. McDugle's statements in paragraph 3 establish that there is a nexus between the apparatus attached to Mr. Murch's boat and the claims of the present patent application.

With regard to the degree of control, Mr. McDugle, as stated in paragraph 4, recalls attempting to contact Mr. Murch approximately five to seven times in the following months after the installation of the first rendition of the lateral thruster. He specifically recalls making contact with Mr. Murch three specific times, and as stated in paragraph 5, conducted post-installation improvements upon the first rendition of the lateral thruster. Mr. McDugle noted that he vividly recalls his attempts to contact Mr. Murch because due to the various improvements made to the later renditions of the lateral thruster, Mr. McDugle wanted to replace the original version on Mr. Murch's boat entirely.

Therefore, it is believed that the nature of this exercise of control by way of numerous communications, as well as follow-up improvements and attempts to entirely replace the first rendition, indicates the element of control over the experimental use lateral thruster. The previous Response discusses in great detail the numerous factors of recent case law related to experimental use, and given the additional information in the latest Declaration, in conjunction with the facts set out in the last Response (as well as previous Responses), it is strongly believed that the overall nature of this first prototype was that of experimental use.

5. Inventor Changed Design Based on Results

It should be noted that the applicant has changed the feature of the embodiment due to this testing, as recited in the seventh fact pattern in the EZ Dock case. One of the changed factors is a perimeter flange, which is shown in the top view in Fig. 4. Further, another change resulting from this experimental use was the position of the internal motor, which is now positioned in a more lateral orientation with respect to the main housing as shown in Fig. 3 (see the opener 104 to which a drive shaft is positioned in the ANSI text on page 20, beginning at line 6). Of course, the applicant does not intend to limit the claims to such an orientation, but the point is that adjustment of the preferred embodiment was made directly related to the experimental use. Further, these changes from the original prototype manifested themselves by way of claims, albeit dependent claims.

Now let us turn our attention to the newly submitted claims 49 through 64. Claim 49 has substantially the same recitations as in the other parent claims, except that in paragraph d) of claim 49 it recites that each extension member has a perimeter flange connected to, and positioned around at least a substantial portion of a lower perimeter edge portion of the extension member, with the perimeter flange positioned with a substantial horizontal alignment component from the lower perimeter edge portion to extend into the surrounding water.

This relates to the perimeter flange 86. This is also discussed in page 13 of Mr. McDugle's earlier Declaration. Mr. McDugle points out that with that perimeter flange it made an improvement in the flow pattern of the water so that there was less pressure loss and less turbulence in the water entering the passageways defined by the extensions. He also points out that by observing the water flow the laterally extending perimeter flange would split the water flow in a manner so that the water above the flange would flow more easily over the extensions and the water below the flange would flow more evenly into the partial passage provided by the extensions.

At the bottom part of page 13, Mr. McDugle indicates that he is reasonably confident in saying that he increased the effect of thrust as a minimum by 50% and quite possibly as much as 100% over the first prototype. Although he does not have precise measurements of this, this is based upon his observations of the ability to move

the boat sideways, which would of course have a proportional relationship to the thrust provided by the thrust assembly.

Of course, the above-noted factors merely show fact patterns similar to the EZ Dock case, where of course other facts in the present case indicate that the general nature of the transaction as experimental.

As recited in the inventor's second Declaration of September 6, 2006, there was limited knowledge of the likelihood of success of the embodiment, and as noted in column 8, the motivation for the prototype was for experimentation.

Then on page 5 of the later McDugle Declaration, Mr. McDugle was also asked to clarify to the undersigned the question of whether he regarded the arrangement with Mr. Murch as an experimental arrangement or more commercial. Again, Mr. McDugle made it quite clear that "without a doubt my answer is that substantially my entire motivation was for the purpose of experimental and I believe this is very clear from my Declaration."

The history of this case includes the Examiner originally citing the 1989 Federal Circuit case, RCA Corp. vs. DataGen Corp, where the law has been updated as recited above with regard to the Pfaff case. Attachment A of the last Office Action illustrates the principles of Pfaff, in a mind-map-like display which is reproduced herein below. The Examiners pointed out portions of the Declarations in paragraph 7, the second paragraph of the last Office Action, where the Examiner stated that the Applicant failed to maintain control over the so-called experimental use. As the Declaration states, Mr. Murch "drove the boat away", and applicant was "not able to reach him." However, with the Declarations and all the facts taken as a whole, it is believed that experimental use is clearly established by way of Pfaff as well as the EZ Dock case. The next sentence in Section 7 of the Examiner's response, the Examiner noted that the applicant's attempt to contact the purchaser is noted, however an attempt to maintain control over an experimental sale is not the same as maintaining control itself.. It should be noted that the first element of the on-sale bar as per Pfaff is that "the subject of a commercial offer for sale is not primarily for experimental purposes. In this case, the subject was clearly for experimental purposes subjectively to the applicant. Further, in that same note, the next sentence by the Examiner states that "the applicant makes no mention of

the informing of the purchaser of the so-called experimental use." However, the applicant at the time was not so well-versed in patent law to use such a legal term to inform the purchaser, Mr. Murch, that this was an experimental sale. However, using the general term of an experimental sale as opposed to the patent legalese definition, it is clear as noted above that he applicant was conducting an experiment with regard to this device.

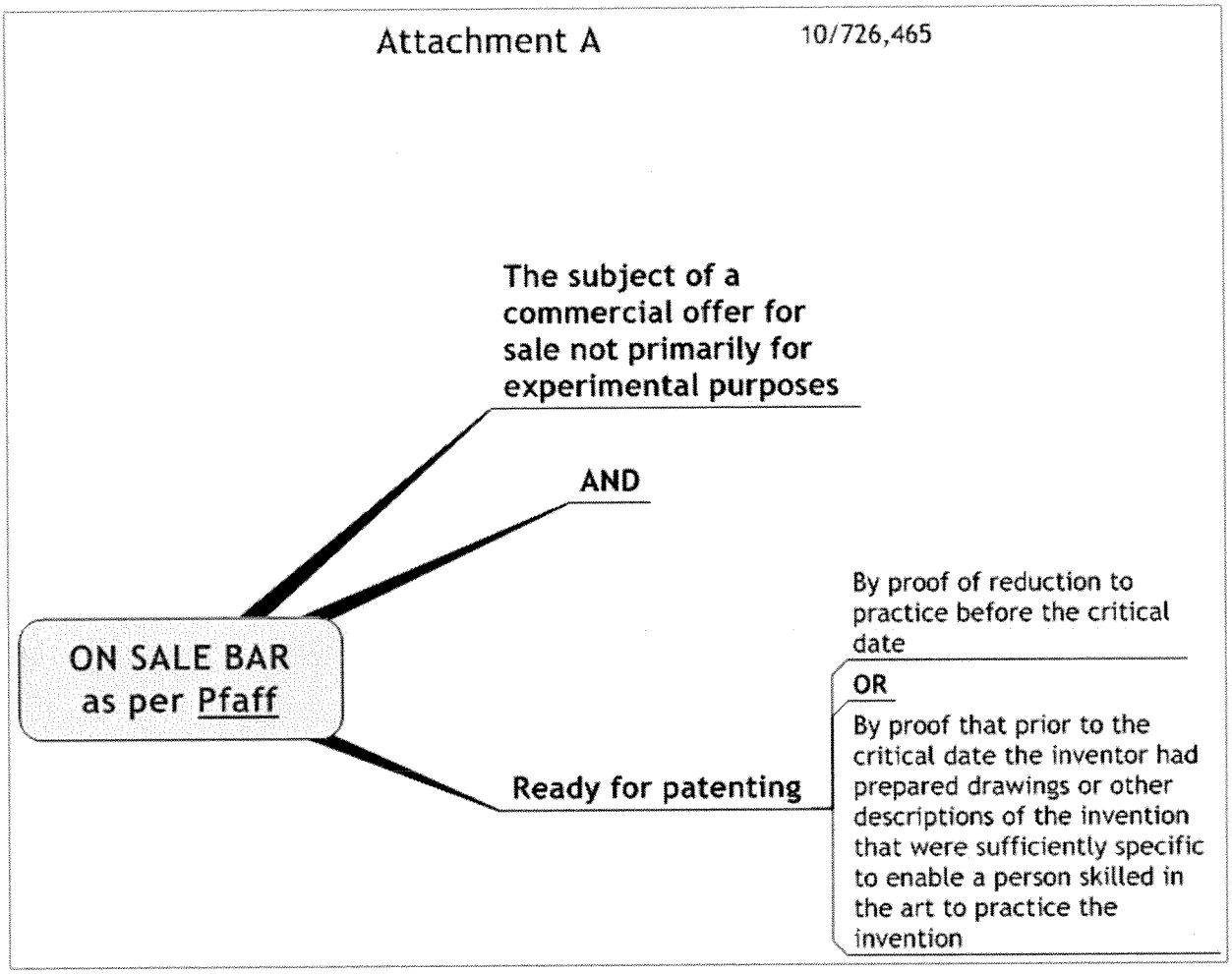
In the final sentence of the second full paragraph under Section 7 the last Office Action, the Examiner noted stated that "it is not enough that the applicant regarded the sale as experimental, the purchaser must be made aware as well, in that diligent follow up in monitoring is required." As noted above, as further recited in the last Office Action as well as what is recited in the case law under such cases such as Pfaff and EZ Dock, there is no indication that "diligent follow-up and monitoring is required." Such actions are a factor in the overall analysis but it appears the Examiner has taken a position that is not firmly based on the case law.

In the third paragraph in Section 7 of the last Office Action, the Examiner stated that the changes and modifications were not made. The first constructed unit did have issues as and was in need of repair. As described above under Subsection 5 of the subheading for the facts related to the first prong of the Pfaff test as recited in EZ Dock, such changes are discussed in greater detail. The Examiner noted that a period of five months is not acceptable. It is assumed that the Examiner is referring to the time between certain communications. However, it should be noted that boating seasons are scattered in Northwestern Washington, and such time periods are not unusual. The Examiner stated in the final sentence of the third paragraph under Section 7 of the last Office Action that other changes were made to address water flowing up around the housing are not supported by the Declaration. Further, the Examiner stated in the next single-line paragraph under Section 7 of the last Office Action that the applicant further argued that the design was changed due to such experimental test results. The answer to this statement is that the design was indeed changed, as described above.

The final paragraph in Section 7 of the Office Action, the Examiner states that at least claims 30 through 38 are directed to the original on sale design and do not contain the changes as argued. However, changes in the design will need not necessarily be

reflected in all the claims, but merely are a factor to show that there was indeed experimental use. It is not clear why the Examiner has proposed his own interpretation that the claims 30-38 must include the specific changes. Of course, the claims are broad by nature, and such changes which, while prohibitive in value for determining experimental use, will not necessarily manifest themselves into changes in the claims.

The final sentence of Section 7 in the last Office Action appears to indicate again that the Examiner may not have a grasp on the case law as now recited in Pfaff. It should be noted that the Examiner cited the incorrect law in the first Office Action and has maintained his position after being informed by the proper case law in Pfaff in the previous Office Actions. The Examiner stated in the last sentence that "such is clear evidence of reduction to practise (sic. practice) which constitutes an on-sale bar." Again, it should be reiterated that the proper Supreme Court test under Pfaff has a two-prong test where the second prong is dichotomized disjunctively into two subparts. Shown below is a graphic of the last attachment which perhaps best illustrates the test. As shown in the lower right-hand portion, reduction to practice is one method of showing the second prong. However, even if there is evidence of reduction to practice, the first two prongs are conjunctive in nature and both must be met. Therefore, the first prong, which states that the offer is primarily not for experimental use, is a primary focus in the arguments in the last response, which are substantially similar to your arguments presented above. The graphic below illustrates the factors of the Pfaff case.



Therefore the above graphic illustrates the case law and reduction to practice is not dispositive in itself as to whether there is an on sale bar.

Conclusion Regarding the Overall Nature of the Facts for the first issue.

Further, regarding the general nature of the sale, it can be appreciated that the sale between Cap Sante (the assignee of the application) and the purchaser had a general fact pattern of a significant amount of modification, uncertainty in the design, changes to the design, a single sale without any additional sales until much later, selling to and working with an engineer purchaser who is generally more tolerant of a development process and other possible potential customers, and other factors noted above and which can be appreciated through the nature of the various declarations. The whole nature of the 102(b) statutory bar is to prevent effectively extending the life of

the patent where the inventor incurs many sales, makes a large profit off the patent and then files a patent to effectively extend the life of his limited monopoly. Taking a step back and looking at the facts in totality, it is clear that the inventor in this case was not seeking to extend the life of the patent, and that the overall theme and spirit of his actions were very experimental.

Response to Issue 2)

Summary of the *Den Ouden* Reference:

The Den Ouden reference in column 2 about line 33 "a centerline of the tunnel to is at least half a tunnel tube diameter above the bottom of the boat, and at least a full tunnel diameter below the water line.

Arguments

The Examiner indicated that the Den Ouden reference teaches the positioning of a thruster that is clear of the water line when the boat is operating at high speed. However, after a thorough review of the Den Ouden reference, it is clear that the specification teaches for a "dog six," which is a range in the water side of the stern 4. After review of the disclosure and the text, it is clear that this dog is an open-ended type arrangement such that the perimeter element of this dog has an outward or extending type of flange as shown in the isometric view in Fig. 1. It is clear that the propeller 7 is positioned adjacent to this open arena. The Examiner noted in the last Office Action, dated March 27, 2007 in Section 4 under the fourth full paragraph that it would been obvious to one of ordinary skill in the art to time the invention to raise the positioning of the thruster disclosed by the applicant to a position as taught by Den Ouden.

The claims as a whole must be considered when compared to the prior art. It is clear from the claims of our current application that the application claims two extension members positioned at opposite sides of the central housing, as recited in part C of a claim 1. It is clear that each extension member having a lower downward-facing surface defines a flow passageway at the downwardly facing surface. The prior art shows an open-type arrangement adjacent to the propeller 7, as shown in Fig. 1 of the Den Ouden application and as shown in the various figures. The Examiner noted in the

fifth paragraph under Section 4 of his last response that such a combination would have been desirable at the time of invention so as to reduce drag.
Again, the claim must be reviewed as a whole when compared against the prior art. The prior art fails to teach or suggest having the two extension members positioned t opposite sides of a central housing.

Under Section 4 of the Examiner's response, the Examiner noted that the extent is about 25% or 30% as claimed. It is assumed that the Examiner is referring to the Den Ouden reference, where claim 12, which depends upon claim 11, claims a distance of the outer edges of the two extension members is no greater than about 60% and no less than about 25% of a distance between outer edge locations of the transom where the bottom inside walls meet. In other words, the total width of the transom of the unit is no less than 25% (a quarter of the distance) of the width of the transom, and no greater than 65%. Of course, this is a dependent claim; however, after reviewing Fig. 1 of the Den Ouden reference, it is apparent that the width of the unit is not even 25% of the total width of the transom. Therefore, there is no suggestion or teaching within the Den Ouden reference that the unit is to be greater than 25%. Although Fig. 1 is an isometric view, it is clear that the width of this unit is not greater than one quarter of the total width. In other words, practically speaking, it appears that more than five of these transoms could fit adjacent to one another positioned along the back portion. At any rate, it is reiterated that claim 12 is merely a dependant claim.

Regarding the Examiner's discussion of claim 16 in the seventh paragraph under Section 4 of his last response, the Examiner noted that the numeric designation of 40% of the minimum time requirement would have been obvious for one skilled in the art. Firstly, it is strongly believe that the independent claim is allowable; however, it is our belief that having the extended shrouds on the lateral portions of the central housing is by no means an obvious endeavor which effectively increases the lateral with of the entire thruster.

The particular orientation of the Den Ouden reference was considered in the inventive process and was rejected as it results in too much air flowing through the propeller portion. As stated in the background section of our application, "A more common currently used stern thruster is a tunnel-propeller thruster where there is a

laterally aligned housing in the form of a cylindrical duct or tunnel positioned at the transom below the water, with one or two propellers positioned in the duct or tunnel.

The tunnel thruster needs to be positioned far enough below the water surface to prevent air being sucked into the tunnel passageway along with the water traveling through the propellers, since this can cause a substantial loss of thrust. Thus, it is generally recommended that the thruster be positioned in the water at least one tunnel diameter below the water line.

However, for smaller boats which have a rather shallow draft, a thruster permanently installed in the transom of the boat has in general been impractical. The dimensions of the thrust apparatus must be sufficiently large to be able to eject water at a volumetric rate sufficient to provide adequate thrust for maneuvering, and yet (as indicated above) be a sufficient distance below the surface of the water so that it will not lose thrust by sucking in ambient air. However, if the lower part of this thrust apparatus is too far down, portions of the thruster will be positioned in the water stream that passes under the hull of the boat, traveling at medium or full speed, thus causing substantial drag."

Later testing of the original experimental installation of the invention for this out as adaptations were made to the boat, and later embodiments of the invention were positioned with these test results in mind.

Response to Issue 3)

Summary of the Stallman Reference:

This invention relates generally to water jet pumps and more particularly to a water jet motor for boats employing water jet pumps.

In inboard motor applications, the water intakes are flush mounted in the hull bottom. At high boat speeds, the boat rises and the intake does not supply sufficient water to the pump.

This reference provides an improved water jet pump that can be attached to existing outboard motors.

Other objects of the invention are to provide a water jet pump for boats in which: (a) The water intake section extends a minimum distance below the

bottom of the boat and is fitted with scoop vanes to assure sufficient delivery of water to the pump. (b) The trailing edge of the intake section touches bottom in shallow water before the scoop vanes to prevent scooping in rocks and dirt. (c) The pump impeller is of the mixed flow type and provides the proper combination of pressure and volume for best thrust efficiency for a given input horsepower. (d) The edges of the impeller blades form a tapered section in the pump casing such that simple removal of shims will allow adjustment of impeller clearance. (e) A composition type sleeve water-lubricated bearing is used. (f) The coolant water for the engine is taken from the pump through a narrow spinning section of the impeller which acts as a centrifugal separator to remove foreign material. (g) The reviewing gate which deflects the jet stream forward, to move the boat backward, is mounted such that it moves in the direction the jet is steered or deflected and thus allows steering in reverse.

Argument

The Stallman reference discloses a jet propulsion motor to be adapted to existing outboard motors. This reference continues to extend below the water line while the boat is in forward motion, otherwise it will longer operate to intake water to provide propulsion.

As recited in paragraph 5 of the last application, the Examiner rejected the claims 49--64 under Section 103 as unpatentable over the Offer for Sale, which is discussed in issue 1 above in conjunction with the Stallman reference, US 3,082,732.

It is not abundantly clear why the Stallman reference was cited, because claim 39 under the last portion of Section C clearly states that "when the boat is operating during the higher velocity operating mode, the thruster is substantially clear of the water that is at the transom wake surface." It is clear that Stallman is a water jet motor for boats. As shown in Fig. 1, the take section 7 is comprised of a trailing edge 28 and intake grill veins 25 as shown in Fig. 4. Referring now to Fig. 1, it is clear that this portion 7 is in line with the lower wake surface and it is clear from the overall teaching of this document that this unit is for propelling the boat. Therefore, there is no way that this perimeter edge surface is to raise above the water surface, since it is simply designed to have water be thrusted up therein and ejected through the jet pump 44

portion of the boat. Therefore, not only is this reference a negative teaching, teaching the opposite issue of the thrust of the claim 49, this reference would be inoperable when utilized in a manner such as claimed in claim 39.

Further, it is clear from claims 39 and 49, that in part C of claim 49 the independent claim recites that the "lower perimeter edge portion which is located at an elevation lower than the upper portions of the end portions of the center housing, each extension member having a downwardly facing surface..." It is clear from the teachings in Stallman that the leading-edge surface as shown between numeral 22 and 32 of Fig. 4 has a downward facing surface. However, the trailing surface between 3 and 8 of Fig. 4 is an upward facing surface. It is clear that this teaching of Stallman is for forward propulsion, and such an arrangement of these surfaces with an rearward and a downward opening is quite distinct from two downwardly facing surfaces on the extension members, as claimed in the present application.

VIII. Conclusion:

Appellants respectfully submit that the rejection of claims 1-64 in view of the applicant's disclosed experimental use, and prior art references in view of said experimental use is improper. The rejection of claims 1-64 based on the allegation that the invention as claimed was offered for commercial sale more than one year prior to the application for patent has no basis in fact, and is legally insupportable. Likewise deficient in factual basis and legal support is the rejection of claims 1-29 and 49-64 for lack of novelty. For these reasons it is respectfully submitted that these rejections are improper and it is requested that they be reversed.

It is paramount that the correct law is applied with regard to the analysis of the on-sale bar. As recited above and recited in detail in the previous responses, the recent authority on this subject is the Supreme Court case Pfaff. This case presents the two-prong test, and the second prong consists of two separate disjunctive factors. One of the factors is whether the claimed invention was reduced to practice. The EZ Dock case provides guidance with regard to the factors of the first prong, which relates to whether the sale was primarily for experimental purposes. It is believed there are

sufficient facts and evidence before the board that a proper finding of experimental use can be determined.

With regard to the cited prior art references, these references are used as the basis of a Section 103 rejection in combination with the item the Examiner states was not an experimental use. However, resolving issue number one, noted above, renders these two issues regarding the prior art references moot.

Signed at Bellingham, County of Whatcom, State of Washington this August 27, 2007.

Respectfully submitted,

Bruce McDugle

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